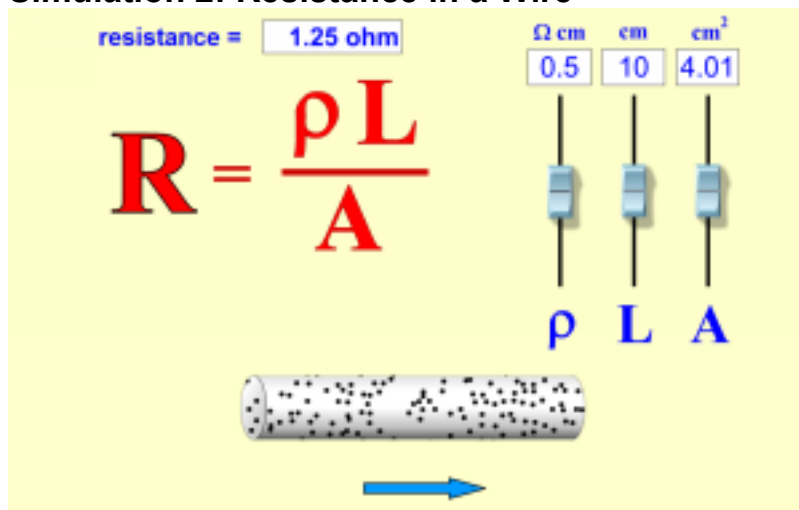


Simulation 1: Battery- Resistor Circuit

1. Explain the following according to the circuit diagram.
 - Voltage
 - Resistance
2. What must happen to the voltage and resistance for the circuit to get hot?
3. What happens to the current in this scenario?
4. What must happen to the voltage and resistance for the circuit to get cold?
5. What happens to the current in this scenario?

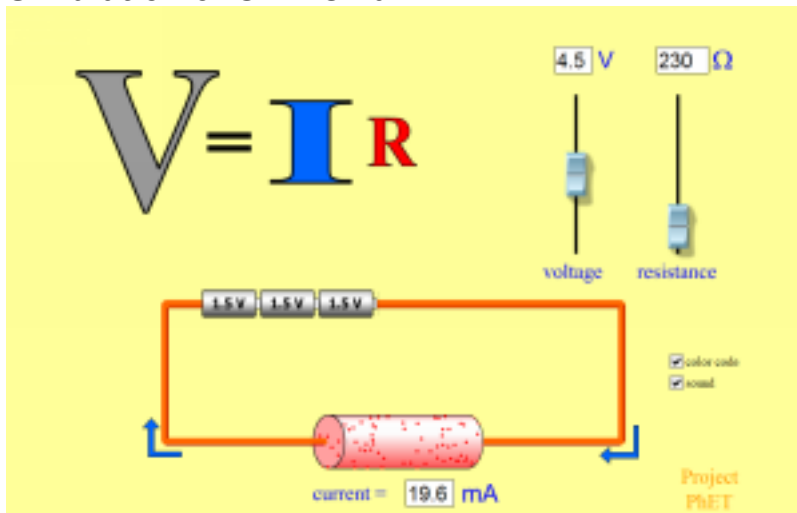
Simulation 2: Resistance in a Wire



1. What variables affect the resistance in the wire?
2. As wire length (cm) increases, the resistance (Ω) _____

3. As wire area (cm²) increases, the resistance (Ω) _____
4. As wire density (Ω cm) increases, the resistance (Ω) _____
5. What must happen for the wire's resistance to be at its greatest?
6. What must happen for the wire's resistance to be at its least?

Simulation 3: Ohm's Law



1. The equation in this simulation is shown a little differently. Write the equation below and divide both sides by I, the current. Do you recognize the equation now?
2. What happens to I when V increases?
3. What happens to I when R increases?
4. Let Voltage = 6.0 V. How many 1.5 V batteries do you need?
5. Let Resistance = 750 ohms. Calculate the current.
6. Does your answer match with the simulation's answer? (mA means milliamp.....1000 mA = 1 A)